USSR

UDC 621.762:669.245

BABICH, B. N., BERESTEN', N. Ye., LYUKEVICH, V. I., ROMANOVICH, I. V., TIMOFEYEVA, N. I.

"Influence of Distribution of Hardening Phase Particles in Powders on Thermal Stability of Dispersion-Hardened Nickel"

Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 25-30.

Abstract: This article studies the structural stability and strength properties of compositions produced of powders made by various methods providing near-identical hardening phase particle dimensions but different distributions of these particles in the matrix. It was found that achievement in initial powders of the most even possible distribution of ultrafine particles of the hardening phase assures thermal stability of dispersion-hardened nickel. The level of high-temperature properties of dispersion-hardened nickel depends on the presence of a certain quantity of oriented recrystallization areas in the structure with total absence of equiaxial grains. Unevenness of particle distribution of the hardening phase particles in the initial powders causes an increase in the mean particle size when the compact material is produced and a change in the nature of recrystallization, with the formation of equiaxial grains. The tests were based on nickel powder with 2% hafnium dioxide. The powders were produced by carbonate precipitation of nitrate solutions and evaporation concentration. Following hot extrusion

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USSR

UDC 621.762:669.245

BABICH, B. N., BERESTEN', N. Ye., LYUKEVICH, V. I., ROMANOVICH, I. V., TIMOFEYEVA, N. I., Kiev, Poroshkovaya Metallurgiya, No 8, Aug, 1972, pp 25-30.

and cold drawing, the batch with poorer distribution showed intensive particle growth, probably as a result of accumulation of particles into conglomerates.

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Superalloys

USSR

UDC 669.24'298:620.185.5

BABICH, B. N., LYUKEVICH, V. I., LEVINSKAYA, M. KH. and ROMASHOV, V. M.

"Recrystallization of Nickel Strengthened With Thorium Dioxide"

Moscow, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1972, pp 36-40

Abstract: The study deals with the recrystallization of nickel strengthened with thorium dioxide following cold drawing and anneals of extruded metal powder rods. The material's composition was 96.89% Ni; 2.81% ThO_2; 0.07% C; 0.008% S; 0.003% P; 0.08% Fe; 0.037% Cu. Precipitation-hardened nickel has an extremely stable structure which explains the preservation of a considerable strengthening effect as a result of cold drawing after high-temperature annealing. The material features a wide temperature interval between the recovery occurring at 400-600°C and the recrystallization which develops at 1200-1400°C. On recrystallization, the precipitation-hardened nickel develops a structural inhomogeneity which is stable up to 1400°C. The amount of large recrystallized grains is governed by the preliminary deformation ratio and annealing temperatures. An increase in cold deformation activates the recrystallization of nickel strengthened with ThO_2.

USSR

BABICH, B. N., et al, Metallovedeniye i termicheskaya obrabotka metallov, No 3, 1972, pp 36-40

However, higher deformation ratios (83%) suppress the formation of large recrystallized grains. (3 illustrations, 2 tables, 11 bibliographic references).

2/2

USSR

UDC 536.2

CHEKHOVSKOY, V. Ya., PETROV, V. A., PETROVA, I. I., and LYUKSHIN, E. N.

"Heat Conductivity of Pyrographite at High Temperatures"

Moscow, Teplofizika Vysokih Temperatur, Akademiya Nauk SSSR, Vol 9, No 1, Jan-Feb 1971, pp 80-81

Abstract: The specimens of pyrographite used to determine its heat conductivity were of tubular form, they were obtained by precipitation from methane at 2100°C temperature. The outside diameter of the tubes was 12 millimeter, wall thickness 1 and 2 millimeter. The specimen was heated by electric current passing through it, the heat generated was determined by measuring the current and the voltage drop.

The coefficient of heat conductivity in the radial direction was determined in the range of 1200 to 2500°K.

The results are compared with those obtained by other authors. The discrepancies are quite high. This is apparently due to differences in micro and macro structure of pyrographite, which depends on precipitation temperature, heat treatment, specimen geometry and other factors. The discrepancies

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USSR

CHEKHOVSKOY, V. Ya., et al., Teplofizika Vysokih Temperatur, Akademiya Nauk SSSR, Vol 9, No 1, Jan-Feb 1971, pp 80-81

are also caused by systematic errors connected with different experimental methods.

The error analysis of the obtained results shows that the maximum relative systematic error in determining the coefficient of heat conductivity is 15 to 16%.

2/2

USSR

UDC: 622.24.051.553

Turov, L. N., Bobrov, S. N., Lyukshin, P. M., Smirnov, V. P.

"Industrial Testing of Type V-97T Drill Bits with Noncase-hardened Steel Cutters"

Moscow, Bureniye, No 6, 1972, pp 3-4.

Abstract: The Moscow Institute of the Petrochemical and Gas Industry imeni I. M. Gubkin has developed drill bit cutters of noncase-hardened steel, referred to as type D7KhFNSh. V-97T drill bits have been made using these cutters. The cutters were hardened in oil (from 840-860°C) then low tempered (at 180-200°C). The bits have been subjected to test stand and field testing, and have shown test results some 30-40% higher then the series produced bits with cutters of type 17N3MASSh steel.

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UDC 536.421.4+536.421.1

USSR

GENDELEV, S. Sh., ZAVORCHKOVSKIY, Ya. A., and LYUBSHIN, V. V.

"Effect of Crystallization Conditions on the Smoothness of Manganese Ferrite Film Surfaces"

V sb. Kristallizatsiya i faz. prevrashcheniya (Crystallization and Phase Transformations--collection of works) Minsk, "Nauka i tekhn." 1971, pp 86-90 (from Zh-Fizika, No. 9, 1971, Abstract No. 9B399)

Translation: The effect of temperature and rate of crystallization on the dimensions and form of the bumps in the growth of manganese ferrite films is investigated. The films were grown by the method of chemical transport reactions in a small gap. With increasing temperature, there were at first many and very small growing bumps; these reached a maximum and then degenerated. The size of the truncated bumps increased continuously. With an increase in the rate of growth, the height of the bumps increased, and their shape changed from pyramidal to conical. Author's abstract

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USSR

UDC 621.317.331:536.45

PETROV, V. A., PETROVA, I. I., CHEKHOVSKOY, V. Ya., LYUBSHIN, Ye. N.

"Specific Electric Resistivity of Pyrographite"

Moscow, Teplofizika Vysokikh Temperatur, Vol. 9, No. 2, Mar-Apr, 71, p. 302-305.

Abstract: Results are presented from an experimental determination of the specific electric resistivity of pyrographite. The specific resistivity in the direction parallel to the precipitation surface is determined in the 300-2200°K temperature interval, the resistivity in the direction perpendicular to this surface -- in the 300-1800°K temperature interval. The data produced are compared with the data of other authors.

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UDC 669.721.5:536.422.1

USSR

MAKSIMENKO, G. I., LYULICHEV, A. N., CURPRININ, F. I., and KORSUNSKAYA, I. G.
Kharkov

"Effect of Surrounding Medium on the Process of Thermal Failure of the Surface of Magnesium Alloys in a Vacuum"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 72, pp 106-112

Abstract: The purpose of this work was to study the effect of the surrounding medium on the initial stage of sublimation, i.e., on the process of thermal failure of the surface of magnesium alloys in a vacuum. The magnesium alloy tested was MA-2. Specifically investigated were the effects of vacuum depth, temperature of the surfaces and medium surrounding the sample, and composition of residual gases in the vacuum chamber. The better the vacuum the better chance there is to exclude the formation of oxide films on the sample due to diffusion processes. Temperature of the sample and surrounding medium increase the possibility of oxide formation as well as the composition of residual gases. Of the three effects studied, the composition of the residual gases contributes the most toward thermal failure of the alloy's surface. It was noted that the composition of the residual gases between the sample and cryogenic tanks differed substantially from that of the gases on the opposite side of the sample. 5 figures, 4 bibliographic references.

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USSR UDC 621.791:539.378:669.721+669.71

KORSUNSKAYA, I. G., Engineer, LYULICHEV, A. N., Candidate of Chemical Sciences, and MAKSIMENKO, G. I., Engineer, Physico Technical Institute of Low Temperatures, Academy of Sciences UkrSSR

"Diffusion Welding of Magnesium With Aluminum in Vacuum"

Moscow, Svarochnoye Proizvodstvo, No 7, Jul 70, pp 19-20

Abstract: Diffusion welding was carried out on a polished aluminum (99.99% pure) sample lying free on a polished magnesium (99.99% pure) sample in a vacuum chamber (10^{-2} - 10^{-6} torr) at 440°C. A microscopic section of the welded joint is shown. The disappearance of discontinuity at 440°C was observed directly in vacuum, using the MVT metallographic microscope. It is concluded that in order to realize a diffusion welding of magnesium with aluminum it is not necessary to apply pressure for the mechanical destruction of oxide films, and that a contact between metal surfaces is quite sufficient. 4 figures, 2 refer.

1/1

1/2 055 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--POSSIBILITIES FOR USING GAS TURBINE ASSEMBLIES AND MAGNETOHYDRODYNAMIC GENERATORS IN A NUCLEAR POWER STATION WITH HIGH

AUTHOR-(04)-MILLIONSHCHIKOV, M.D., LYULKA, A.M., NEDOSPASOV, A.V., SHEYNDLIN, A.YE.

COUNTRY OF INFO--USSR

SOURCE--TOPLOFIZ. VYS. TEMP. 1970, 8(2), 379-93

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--GAS TURBINE, MAGNETOHYDRODYNAMICS, NUCLEAR POWER PLANT, MHD GENERATOR, GAS COOLED NUCLEAR REACTOR/(U)3000MW REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0589 STEP NO--UR/0294/70/008/002/0379/0393

CIRC ACCESSION NO--AP0137674

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910002-4"

UNCLASSIFIED PROCESSING DATE--27NOV70

2/2 055

CIRC ACCESSION NO--AP0137674

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THERMODYNAMIC EFFICIENCIES (ECONOMICS) AND REDUCED LEVELS OF THERMAL POLLUTION ATTAINABLE IN HE GAS COOLED REACTORS COUPLED TO GAS TURBINES OR MAGNETOHYDRODYNAMIC (MHD) GENERATORS ARE DISCUSSED. GAS TURBINE DESIGNS, THEIR COUPLING TO 1200-MW REACTORS, THEIR OPERATION AT 850, 950, AND 1200DEGREES, AND THEIR EFFICIENCIES OF 46.2-54.5PERCENT ARE COMPARED AND ARE DISCUSSED IN RELATION TO COUNTERFLOW AND CROSS FLOW REGENERATOR CHARACTERISTICS. THE CHARACTERISTICS AND EFFICIENCIES OF CARBIDE FUELED 3000-MW REACTORS COUPLED TO MHD GENERATORS OPERATING ON AR-CS OR HE-CS MIXTS, AT GAS OUTLET TEMPS. OF 1733-1973DEGREESK AND REACTOR PRESSURES OF 5-50 ATM ARE DISCUSSED. AN EFFICIENCY OF 57-9PERCENT WAS CALCD. FOR A 3000-MW MHD COUPLED REACTOR OPERATING AT A GAS OUTLET TEMP. OF 2273DEGREESK AT A HEAT RECOVERY OF 90-3PERCENT; INCREASING THE INLET PRESSURE FROM 30 TO 60 ATM REDUCED CAPITAL INVESTMENTS BY SIMILAR TO 25PERCENT AND THE COST PER KW-HR BY SIMILAR TO 11PERCENT.

UNCLASSIFIED

LYUL'YEV, V. L.

JPRS 55172
28 June 1972

MULTITUBE GENERATOR BANK

[Article by G.I. Averev, V.L. Lyul'yev, V.B. Mayburov, I.S. Savchenko, and I.R. Yampol'skiy: Preprint-68, Kharkov, 24 November 1970, pp 1-13]

The experimental work in the study of the interaction of high-frequency fields with a plasma have required the creation of exceptionally powerful pulse-generator systems in the 1-5 megahertz frequency range. Reference [1] contains a description of a setup and a high frequency 3-phase self-excited oscillator for studying the interaction of a traveling field with a plasma. This setup is characterized by the conditions of a strong connection of the circuit to the plasma. The installed power of the tubes of the self-excited oscillator is 60 megawatts.

In references [2, 3] on experimental studies of dynamic stabilization and confinement of a plasma, high frequency electromagnetic fields of quadrupolar configuration rotating around the plasma column are used. The performance of this research required the creation of a generator bank with an installed tube capacity of about 80 megawatts. The primary difficulties in creating generators of this type are connected with the necessity for summing the power of a large number of tubes and insuring phasing such as to obtain rotating electromagnetic fields during operation of the generator on a variable load which depends on the plasma properties and the connection with the plasma.

In contrast to [1], the described generators are characterized by operating conditions determined by the low coupling of the high frequency field to the plasma (the level of the high frequency fields in the plasma region is relatively small). The losses in the plasma, as a rule, do not exceed 10-40 percent of the losses in the circuit. This permitted application of direct connection of the circuit to the tube anodes without any matching devices. In the mode without a plasma, the generator operates in a strongly overloaded mode. Additional loading of the circuit by the plasma does not lead to a significant reduction in voltage on the circuit, and the tube conditions approach critical.

In a number of cases more significant loading of the circuit by the plasma was observed. In order to eliminate the strong voltage reductions in the circuit, independent excitation was used in these cases.

- 1 -

[I - USSR - 1]

1/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--OXIDES OF HIGHER UNSATURATED ACIDS. STEREOCHEMISTRY OF THE REACTION OF OXIDES OF METHYL CIS AND TRANS OCTADECENOATES WITH TRICHLOROACETIC

AUTHOR-(02)-KURANOVA, I.L., LYUNDIROVA, V.L.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 942-7.

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--STEREOCHEMISTRY, ORGANIC OXIDE, CHLORINATED ORGANIC COMPOUND, ACETIC ACID, ISOMERIZATION, HYDROLYSIS, METHOXY COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1327 STEP NO--UR/0366/70/006/005/0942/0947

CIRC ACCESSION NO--AP0136001

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0135001

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE REACTION IS STEREOSPECIFIC. THUS, ME CIS,OCTADEC,6,ENOATE OXIDE (CIS I) GAVE THE THREOISOMER AND TRANS I GAVE ERYTHRO, ISOMER OF ME (CH SUB2) SUB10 CH(OH)CH(L SUB2 COOL SUB3)(CH SUB2) SUB4 CO SUB2 ME (II). THE HYDROLYSIS OF II GAVE THE CORRESPONDING THREO AND ERYTHRO ACIDS. THREO II ISOMER REACTED WITH MEOH IN THE PRESENCE OF HCL(G) TO GIVE 70PERCENT 2,METHOXY),2(TRICHLOROMETHYL), 5, UNDECYL, 4, (4,CARBOMETHOXYBUTYL),1,3,DIOXOLANE (III). THE ALK. HYDROLYSIS OF III GAVE ITS 4,CARBOXYBUTYL ANALOG. THE ACID HYDROLYSIS OF III GAVE THE THREO ISOMER OF ME(CH SUB2(SUB10 CH(OH)CH(CH)(CH SUB2) SUB4 CO SUB2 H (IV). THE ALK. METHANOLYSIS OF THREO,II ISOMER GAVE 4,(4,CARBOMETHOXYBUTHL) 5,UNDECYCL,1,3,DIOXOLAN,2,ONE WHICH UNDER SEVERE HYDROLYSIS CONDITIONS GAVE IV. FACILITY: LENINGRAD. GOS. UNIV., LENINGRAD, USSR.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ANALYSIS OF IMPURITIES IN GASES -U-

AUTHOR-(05)-RYBIN, E.N., KOGAN, YA.I., KOZHEVNIKOV, A.G., LYUSBAKUNIN, G.G., PANKRATOVA, M.E.
COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 262,484
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--26JAN70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, AMINO ALCOHOL, CHEMICAL PURITY, GAS ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1994/0182 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0114568
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AA0114568

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE METHOD OF ANALYZING THE IMPURITIES IN GASES DESCRIBED IN U.S.S.R. 262,484, THE LEVEL OF DETECTION OF CONDENSATION NUCLEI, CONTG. MOLS. OF AN ACID OR AN ANHYDRIDE, IS INCREASED BY USING AMINO ALCS.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ABSORPTION SPECTRA AND SIZE OF COLLODAL CENTERS IN SODIUM AND POTASSIUM CHLORIDE CRYSTALS -U-

AUTHOR-(05)-SHVARTS, K., EKMANIS, YU.A., UDOD, V.V., LYUSHINA, A.F., TILIKS, YU.YE.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4) 879-84

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ABSORPTION SPECTRUM, SODIUM CHLORIDE, POTASSIUM CHLORIDE, OPTIC PROPERTY, CRYSTAL STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/0580 STEP NO--UR/0181/70/012/003/0879/0884

CIRC ACCESSION NO--AP0105563

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910002-4"

2/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0105563

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COLLOIDAL CENTERS WERE INVESTIGATED IN ELECTROLYTICALLY COLORED NACL AND KCL CRYSTALS WITH THE APPLICATION OF OPTICAL, ELECTRON MICROSCOPIC, AND CHEM. METHODS. COMPARSION OF THE EXPTL. ABSORPTION SPECTRA OF COLLOIDAL PARTICLES WITH THOSE CALCD. BY THE MIE THEORY WITH THE ACCOUNT OF EXPTL. DISTRIBUTION OF THE PARTICLES OVER DIMENSIONS FOR NACL AND KCL CRYSTALS GAVE A GOOD COINCIDENCE. THIS IS A DIRECT PROOF OF THE VALIDITY OF THE MIE THEORY FOR THE DESCRIPTION OF OPTICAL PROPERTIES OF COLLOIDAL PARTICLES IN IONIC CRYSTALS. THE COLLOIDAL CENTERS WITH RADIUS GREATER THAN 600 ANGSTROM ARE REPRESENTED WEAKLY IN THE OPTICAL SPECTRUM, THOUGH SUCH PARTICLES IN ELECTRON MICROSCOPIC INVESTIGATION WERE OBSD. IN ALL CRYSTALS. COLLOIDAL PARTICLES ARE QUITE UNIFORMLY DISTRIBUTED OVER THE CRYSTAL, AND MORE SO IN NACL THAN IN KCL CRYSTALS.

UNCLASSIFIED

USSR

UDC 518:517.944/.947

LYUSIN, O. B.

"Convergence of the Method of Continuous Dispersion of Boundary Conditions When Solving the Poisson Equation"

Riga, Vychisl. tekhn. i krayevyye zadachi -- Sbornik (Computers and Boundary Problems -- Collection of Works), No 10, 1970, pp 3-9 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B946, by I. Shelikhova)

Translation: The solution of Poisson's equation along m straight lines parallel to the X-axis and drawn with an interval h_k is determined in an orthogonal region. The system of differential-difference equations obtained by applying the straight line method to the initial boundary value problem is represented in the form of k systems of the same kind with fixed h_k, which are successively solved by the dispersion method from k = 1 to k = n (the solutions of the k-th system are used in solving the k+1-th system). Conditions are obtained and the convergence of the algorithm described is proven. An evaluation of the maximum error of the s-th approximation is obtained. Based on the maximum principle, an evaluation is obtained for the error in the solution of the differential-difference system as applied to the initial problem.

1/1

USSR UDC 531.1

KOSHLYAKOV, V. N., LYUSIN, YU. B., and CHICHINADZE, M. V., Moscow

"Ballistic Deviations of a Correctable Gyrocompass"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Tverdogo Tela, No 4, Jul-Aug 73, pp 105-111

Abstract: The authors study the ballistic deviations of a correctable gyro-course-indicator with a fluid-torsion suspension of the sensing element. In contrast to the view where it is accepted that the orientation of the main axis of the gyroscope corresponds to the presence of a small velocity deviation, the authors analyze a case where the correcting moments are selected in such a way that in undisturbed motion they correspond to the orientation of the gyroscope axis in the plane of the real meridian, while they correspond to the orientation of the equatorial plane of the tracking sphere of the unit in the plane of the real horizon. Formulas are given for the various parts of the gyro-course-indicator. These are given within the framework of precession theory. The unit itself is described in earlier literature.

UDC 537.32

USSR

DUDKIN, L. D., ZYKOVA, N. P., and LYUSKIN, S. N.

"Anisotropy of the Electrical Properties of Low-Temperature Thermoelectric Materials"

Moscow, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 127-128

Abstract: In connection with the fact that powder metallurgy methods are basic procedures in manufacturing thermocouples, the authors have investigated the anisotropy of the electrical characteristics in pressed samples, the creation of whose texture is determined by the anisotropy of the mechanical properties. It is known that low-temperature thermoelectric materials $Bi_2(Te, Se)_3$ -- n-type -- and $(Bi, Sb)_2Te_3$ -- p-type -- on the basis of the peculiarities of their crystal chemical structure, have an anisotropy of electrical and thermal conductivity at room temperature both in monocrystalline and polycrystalline pressed samples. The thermoelectric efficiency z in the direction of the layers (the direction perpendicular to pressing) is higher than in the direction perpendicular to it. This also determines the directionalness of operations connected with optimizing the thermoelectric effectiveness of these materials and converters. The variation in temperature dependence of the anisotropy of the thermoelectric characteristics of the indicated materials to the temperature of their practical utilization

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910002-4"

USSR

DUDKIN, L. D., et al, Neorganicheskiye Materialy, Vol 6, No 1, Jan 70, pp 127-128

(330°C) was investigated. The results of this study are presented in graphical form. Both for electron and hole materials the anisotropy is retained throughout the entire investigated temperature range. The essential result of the study was confirmation of the anisotropy of the thermal emf in p-type materials in the natural conductivity range (increase in thermal conductivity as a result of bipolar diffusion indicates the occurrence of natural conductivity above 100°C). At the same time, the thermal emf of the electron material is, in practice, isotropic in the entire investigated temperature range. A figure is also presented showing the temperature dependence of anisotropy of the thermoelectric properties of low-temperature materials calculated on the basis of the results of the investigation. The essential changes in anisotropy of the thermoelectric properties of the low-temperature materials indicate that the optimal crystallographic direction of utilization of anisotropic thermoelectric materials cannot be adequately judged from the data for one temperature.

2/2

1/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ANISOTROPY OF THE ELECTRICAL PROPERTIES OF LOW TEMPERATURE THERMOELECTRIC MATERIALS -U-

AUTHOR-(02)-DUDKIN, L.D., LYUSKIN, S.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(1) 127-8

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--ELECTRIC PROPERTY, SELENIDE, ANISOTROPY, THERMAL EFFECT, THERMOELECTRIC PHENOMENON, LOW TEMPERATURE PROPERTY, THERMOCOUPLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0147 STEP NO--UR/0363/70/006/001/0127/0128

CIRC ACCESSION NO--AP0054943

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054943

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LOW TEMP. THERMO ELEC. MATERIALS, N TYPE BI SUB2 (TE, SE) SUB3 AND P TYPE (BI,SB) SUB2 TE SUB3, WERE STUDIED. THE CHANGE IN THE TEMP. DEPENDENCE OF THESE MATERIALS TO THE TEMPS. AT WHICH THEY ARE USED IN PRACTICE (300DEGREES) WAS EXAMD. FOR THIS PURPOSE, PRESSED N AND P TYPE SAMPLES, 10 TIMES 10 TIMES 10 MM, WERE PREPD., AND THE THERMAL EXPANSION COEFF. (ALPHA), THERMAL COND. (KAPPA), AND ELEC. RESISTIVITY PARALLEL AND PERPENDICULAR TO THE PRESSING DIRECTION WERE MEASURED AT ROOM TEMP. TO 350DEGREES USING AN APP. ANALOGOUS TO THE PREVIOUSLY DESCRIBED ONE. FOR BOTH TYPES OF MATERIALS, ALPHA AND KAPPA REMAIN THE SAME OVER THE ENTIRE TEMP. RANGE EXAMD. A SIGNIFICANT RESULT OF THE PRESENT INVESTIGATION IS THE FINDING OF ANISOTROPY IN P TYPE MATERIAL WITHIN THE INTRINSIC REGION. AT THE SAME TIME, THE THERMAL EMF. OF THE N TYPE MATERIAL IS PRACTICALLY ISOTROPIC OVER THE ENTIRE TEMP. RANGE INVESTIGATED. SOME EXPLANATION IS OFFERED FOR THE PHENOMENA OBSD. ROOM TEMP. DATA ARE NOT SUFFICIENT TO CHARACTERIZE THERMOELEC. MATERIALS RELATIVE TO THEIR THERMAL AND ELEC. PROPERTIES, BUT SUCH PROPERTIES SHOULD BE MEASURED ALSO AT ELEVATED TEMPS.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--RHEOLOGICAL PROPERTIES OF A RONGALITE MELT -U-

AUTHOR-(04)-BUDANOV, V.V., LYUSKIN, V.K., MAYOROVA, S.A., BOLESLAVSKAYA, N.F.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 233-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FORMALDEHYDE, SODIUM COMPOUND, THIXOTROPE, VISCOMETER, FLUID VISCOSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0175 STEP NO--UR/0153/70/013/002/0233/0236

CIRC ACCESSION NO--AT0132452
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AT0132452

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RHEOLOGICAL DATA AT 70-900EGREES ARE GIVEN FOR RONGALITE MELTS CONTG. VARYING RATIOS OF NAHSO SUB2 .CH SUB2 O TO NAHSO SUB2 CH SUB2 O.2H SUB2 O AS DETD. IN A ROTATING CYLINDER VISCOMETER. HYSTERESIS LOOPS ARE OBSD. IN LOAD RMP PLOTS AND ARE INTERPRETED AS INDICATING A THIXOTROPIC CHARACTER. THE LOG OF THE BINGHAM VISCOSITY AND THE YIELD VALUE OF THE MOLTEN PRODUCTS ARE LINEARLY DEPENDENT ON THE CONCN. OF NAHSO SUB2 .CH SUB2 O IN THE MELT. EMPIRICAL EQUATIONS ARE DEVELOPED FOR THIS RELATION, WHICH MAY BE USED IN A VISCOMETRIC METHOD FOR DETG. THE H SUB2 O CONTENT OF A MELT.

FACILITY: IVANOV. KHIM.-TEKHNOL. INST., IVANOVO, USSR.

UNCLASSIFIED

USSR UDC: 513.83

LYUSTERNIK, L. A.

"Topological Fundamentals of the General Theory of Eigenvalues"

Moscow, Uspekhi Matematicheskikh Nauk, Vol 25, No 4, July-August 70, pp 19-22

Abstract: This is a translation of the article published by the author in the Monatshefte für Math. und Phys.(37 (1930) by 125-130) under the title "Topologische Grundlagen der Allgemeine Eigenwerttheorie." The eigenvalue of numbers λ_i $(1 \leq i \leq n)$ is defined as the minimum of the number of maxima of form F of spheres of class (M_{i-1}); where F is a quadratic form of n variables, and (M_1) is the class of all i-dimensional spheres of radius 1 $(0 \leq i \leq n)$. The numbers λ_i have the following characteristics: they are critical values of form F if the latter is considered to be a function defined in terms of the M_{n-1}; if $\lambda_1 = \lambda_{1+p}$, the continuum of critical points of form F corresponds to this critical value. The purpose of this article is to generalize this theory of eigenvalues for arbitrary continuous functions with continuous second-order partial derivatives, defined by an arbitrary differentiable manifold.

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USSR

LYUSTERNIK, L. A.

"A Homogeneous Case in Queueing Problems with a Linear Condition"

Mat. vopr. upr. proiz-vom [Mathematical Problems of Production Control -- Collection of Works], No 5, Moscow, 1973, pp 18-23 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V57 by A. Fal')

Translation: An equation in partial derivatives is written for a Poisson random walk function in a homogeneous queueing problem with a linear condition. It is demonstrated that in certain cases this equation can be reduced to a Laplace equation.

1/1

USSR

ZALYAPIN, V. I., LYUSTERNIK, L. A.

"One Class of Problems from Queueing Theory with Linear Couplings"

Mat. vopr. upr. proiz-vom [Mathematical Problems of Production Control -- Collection of Works], No 5, Moscow, 1973, pp 13-17 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V56 by the authors)

Translation: The works of L. A. Lyusternik (RZhMat, 1969, 3V39; 1971, 2V48) have studied one queueing problem in which the input flows are coupled by a certain linear relationship. This report discusses certain generalizations of the plan of linear couplings between input flows which are possible from the standpoint of problems in queueing theory.

1/1

UDC 519.9+517.5

USSR

LYUSTERNIK, L. A.

"A Problem in Queueing Theory and Generalized Cylindrical Functions [1], [2]"

Moscow, Uspekhi Matematicheskikh Nauk, Vol 25, No 4, July-August 70, pp 11-18

Abstract: The problem considered in this paper is that of "taxi and passengers," connected with functions considered as the multidimensional analogs of cylindrical functions. These latter functions, in turn, are connected with transformations of an n-dimensional space of a nonquadratic metric which, in a known sense, is analogous to a hyperbolic plane. The vectors of this space form a system of hypercomplex numbers analogous to hyperbolic complex numbers. The author begins his computations by considering the problem of "an assembly of n components," of which the "taxi and passengers" problem is a special case, for n = 2. The two references indicated in the title are papers written by the same author dealing with other aspects of the same problem in queueing thoery.

1/1

USSR

UDC 678.746.2-136.622-9:66.094.532.2

PASHKOV, A. B., SLABKAYA, L. D., LYUSTGARTEN, YE. I., and LEGOTINA, A. B.

"Phosphoric Acid Cation Exchange Resins of Macroporous Structure"

Moscow, Plasticheskiye Massy, No 7, Jul 70, pp 9-11

Abstract: The authors investigated the process of the phosphorylation of macroporous copolymers of styrene with divinylbenzene of varying porosity. A kinetic study of the phosphorylation of copolymers of gel and macroporous structure showed the advantage of the latter for polymer-analogous transformations. The phosphorus-containing groups were introduced into the copolymer matrix by the Friedel-Crafts reaction by phosphorylation of the copolymer with phosphorus trichloride in the presence of anhydrous $AlCl_3$ in a tetrachloroethane medium with subsequent oxidative hydrolysis of the product with a copolymer:$AlCl_3$:PCl_3 molar ratio of 1:1:3. The optimal phosphorylation conditions were established. The phosphorus content of the phosphorylated copolymer specimens was determined calorimetrically by YE. M. ZELENINA.

1/1

USSR UDC: 546.821'17:535.34

ZHURAKOVSKIY, YE. A., NIKITIN, L. V. and LYUTAYA, M. D., Institute for Problems of Material Science, Academy of Sciences Ukrainian SSR

"X-Ray Spectra and Electron Structure of Titanium Nitrides of Limit Composition and Within the Homogeneity Region"

Moscow, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 8, No 4, Apr 72, pp 708-713

Abstract: In addition to their great practical significance, titanium nitrides are of theoretical interest as compounds of variable composition with a wide homogeneity range. The existence of such compounds in a number of systems has as yet not been satisfactorily explained and is among the central problems of the physics and chemistry of solids. This study concerns the x-ray K- and L_{II}, $_{III}$ emission spectra and K absorption spectra of titanium in titanium nitrides of critical composition and within the homogeneity region (Ti_2N and $TiN_{0.60}$--$TiN_{1.0}$). For nitriding, use was made of 99.8% pure titanium powder with a maximum particle size of 40 μ.

1/2

USSR

ZHURAKOVSKIY, YE. A., et al, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 8, No 4, Apr 72, pp 708-713

The K-emission spectra were obtained by fluorescence using a modified DRUS unit. The optimum K-edge density of 5 mg/cm^2 was maintained constant over the entire series of homogenous nitrides Ti_{1-x} and Ti_2N. An HSM-500 unit was used to obtain ultra-soft $L_{II, III}$ emission spectra of Ti in titanium nitrides. Based on the concentration-dependent changes of the fine spectral structure and on data of quantum-mechanical computations by Bilz and Ern-Switendick, a chart is proposed for the redistribution of electron states of various symmetry in the spd-valence zone of TiN_x crystals of variable composition. The general nature of interactions in nitrides of critical composition of Ti_2N and TiN is discussed. The electron structure is correlated with the properties of titanium nitrides of limit composition and within the homogeneity region. (1 illustration, 2 tables, 24 bibliographic references).

2/2

1/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--POLYAMMONIATES OF GALLIUM HALIDES -U-

AUTHOR-(02)-LYUTAYA, M.O., CHERNYSH, I.G.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 264,371
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970, 47(9)
DATE PUBLISHED--03MAR70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GALLIUM CHLORIDE, BROMIDE, AMMONIUM COMPOUND, AMMONIUM HALIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1445 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0126976
UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0126976

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYAMMONIATES OF GA HALIDES, E.G. GACL SUB3 AND GABR SUB3, ARE PREPD. BY TREATING METALLIC GA WITH THE CORRESPONDING NH SUB4 HALIDE. FACILITY: INSTITUT PROBLEM MATERIALOVEDENIYA AN UKRAINSKOY SSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--THERMAL DECOMPOSITION OF NITRIDES OF SOME TRANSITION METALS IN AIR -U-

AUTHOR-(03)-LYUTAYA, M.D., KULIK, O.P., KACHKOVSKAYA, E.T.

COUNTRY OF INFO--USSR

SOURCE--POROSH. MET., AKAD, NAUK UKR. SSR; NO. 3, 72-5

DATE PUBLISHED----MAR70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--THERMAL DECOMPOSITION, TRANSITION METAL, TITANIUM, NITRIDE, ZIRCONIUM NITRIDE, VANADIUM, HAFNIUM, CHROMIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/0096 STEP NO--UR/0226/70/000/003/0072/0075

CIRC ACCESSION NO--AP0127722

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0127722

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMAL DECOMPOSITION IN THE AIR OF TITANIUM NITRIDES WITH ULTIMATE COMPOSITION AND EN THE HOMOGENEITY REGION AND NITRIDES OF ZIRCONIUM, HAFNIUM, VANADIUM, AND CHROMIUM WAS INVESTIGATED BY THERMOGRAPHIC, CHEMICAL, AND X RAY METHODS. THE DECONPOSITION OF TITANIUM NITRIDE STARTED AT 600DEGREESC. THE DECOMPOSITION OF TITANIUM, ZIRCONIUM, HAFNIUM, VANADIUM, AND CHROMIUM NITRIDES AT CORRESPONDING TEMPERATURES UP TO THE HIGHEST OXIDES OCCURRED THROUGH THE FORMATION OF INTERMEDIATE COMPOUNDS OF VARIABLE COMPOSITION. (AUTH). FACILITY: INST. OF PROBLEMS IN MATERIAL STUDIES, KIEV.

UNCLASSIFIED

LYUTAYA, O.N.

AA0043426 UR 0482 1-70

Soviet Inventions Illustrated, Section I Chemical, Derwent,

232080 POLYMER-CEMENT SUSPENSION suitable for the formation of protective coatings on metals, ceramic article or glass, or for glueing, consists of (in parts by wt): portland cement 10-50, polymethylphenylsiloxane resin 10-80, organic solvent for the resin 5-75, water 5-25 and optionally, a filler (mica, asbestos, oxides of chromium or zinc, etc). Suitable organic solvents include lower alcohols (methanol, ethanol etc), acetone, dioxane, or the like. A thorough mixing of the components results in the formation of a suspension of hydrated cement in a soln. of the resin in the organic solvent. To form a continuous coating, the suspension is applied onto the article to be protected, and subjected to thermal treatment at 80-250°C for 3-24 hrs. The water-absorption of the coating after 24 hrs. is

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19761741

AA0043426

11.5%; the absorption of benzene 4-7%; maximum weight loss at 200°C not more than 20%; dielectric constant 2-4; dielectric loss 0.03-0.003; electric resistance $3\text{-}10^{12}$ ohm. cm; breakthrough voltage 13 kv/mm. 1.4.67. as 1144785/29-33, LYUTYI, V.P. et al. I.V. Grebenshchikov Silicate Chemistry Inst. (19.8.69) Bul. 36/28.11.68. Class 80b, Int. Cl. C 04b.

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19761742

AA0043426

AUTHORS: Lyutyy, V. P.; Rumyantsev, P. F.; Kharitonov, N. P.; Lyutaya, O. N.; Vasil'yeva, I. B.

Institut Khimii Silikatov imeni I. V. Grebenshchikova

19761743

USSR

UDC: 621.384.2

LYUTENKO, V. F., YEGOROV, G. A., Yakutsk Affiliate of the Institute of Physical Space Research and Aeronomy, Siberian Department, Academy of Sciences of the USSR

"A Device for Measuring the Summation Current of Signals"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 7, Mar 72, Author's Certificate No 329487, Division G, filed 21 Jul 70, published 9 Feb 72, p 182

Translation: This Author's Certificate introduces a device for measuring the summation current of signals. The device contains a pickup, a storage capacitor, a discharge resistor, a discriminator and a program device. As a distinguishing feature of the patent, linearity of summation is ensured by connecting the pickup to the input of a voltage repeater whose output is connected to the discriminator and the input of a commutator. Another input of the commutator is connected to the program device, and the commutator output is connected through the discharge resistor to the voltage repeater.

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UDC 66.028.08

USSR

LYATIFALIYEV, K. A., and ISMAILOV, I. M.

"Apparatus for Microdosing Low-Boiling Liquids"

Avtomatiz. i Kontrol'no-Izmerit. Pribory. Ref. Sb. [Automatized and Control-Measuring Apparatus. Reference Collection], 1972, No 5, pp 10-11 (from Referativnyy Zhurnal, No 10, Oct 72, 32. Metrologiya i Izmeritel"naya Tekhnika. Single Issue. Abstract No 10.32.925 by V. S. K.)

Translation: A microdosing apparatus of low-boiling liquids has been developed in the Institute of Petrochemical Processes of the Academy of Sciences of the Azerbaydzhan Soviet Socialist Republic. The working of the microdosing apparatus is based on the displacement of the dosed product by gases escaping during the electrolysis of water, it is characterized by absence of moving components in it. The microdosing apparatus consists of a stabilized power source, an electrolyzer, and a microburet, connected to one another through a microsection. The electrolyzer is filled with a 30% aqueous solution of potassium hydroxide, and the dosed liquid is flushed into the microburet. To exclude an effect of the counterpressure of the system on microdosing, a copper tube with a needle from a medical injector is fixed on the end of the microburet. The service experience of the microdosing apparatus in a series of scientific-research

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USSR

LYUTFALIYEV, K. A. and ISMAILOV, I. M., Avtomatiz. i Kontrol'no-Izmerit. Pribory. Ref. Sb., 1972, No 5, pp 10-11

institutes demonstrated its effectiveness and reliability in operation. One illustr., two biblio. refs.

2/2

UDC 547.426.2

USSR

KAPLUN, A. P., KABANOVA, M. A., LYUTIK, A. I., SHVETS, V. I., and YEVSTIGNEYEVA, R. P., Moscow Institute of Fine Chemical Technology Imeni M. V. Lomonosov

"Study in the Area of Complex Lipids. Synthesis of Phospholidylethanolamines Based on 1,2-di-O-Acyl-sn-Glycerines"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 8, Aug 73, pp 1839-1844

Abstract: The synthesis of O-(1,2-di-O-palmitoyl-sn-glyceryl-3-O-phosphoryl)-ethanolamine was carried out starting with a 1,2-diglyceride and using 2-phtalimidoethyldichlorophosphate and 2-chloromethyl-4-nitrophenyldichloro-phosphate as the phosphorylation agent. An effective method was developed for the formation of phosphodiester structure based on the model of phospha-tidylethanolamine obtained from phosphatidylacids and substituted ethanola-mines or from ethanolamine phosphates and 1,2-diglycerides in presence of mesitylenesulfohylchloride.

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USSR

SHEVCHENKO, A. S., ANDRIYEVSKY, R. A., KALININ, V. P., and LYUTIKOV, R. A., Moscow

"Study of the X-Ray and Pycnometric Density of Interstitial Phases on a Zirconium Base"

Kiev, Academy of Sciences Ukr SSR, Poroshkovaya Metallurgiya, No 1, Jan 70, pp 89-91

Abstract: The results of an investigation of the X-ray (γ_r) and pycnometric (γ_p) density of nitrides, carbides, hydrides, and carbo- and nitrohydrides of zirconium in a homogeneous field are presented. The density was measured on a vacuum pycnometer using ethyl alcohol. The measurement error was about 0.5%, and the scattering of experimental data on γ_p not more than $\pm$ 0.02 g/cm^3. Electrolytic zironium powder was used as the primary material. It was saturated with high purity nitrogen at 1300-1800°C for the production of nitrides. The hydrogen saturation was accomplished at 700-900°C, and the carbides were produced by a two-step synthesis of zirconium powder with graphite of spectral purity in a 10^{-5} mm mercury column vacuum at 1700-2000°C with intermediate pulverization.

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USSR

SHEVCHENKO, A. S., et al, Poroshkovaya Metallurgiya, No 1, Jan 70, pp 89-91

The ternary compounds were synthesized from Zr - ZrN and Zr - ZrC mixtures in a hydrogen medium at 900-1000°C. The variation in lattice parameters with the composition of the zirconium carbides and nitrides is presented in a table. On the basis of the results obtained it can be assumed that the defects of carbides, hydrides, and carbo- and nitrohydrides result from the incompleteness of the nonmetallic sublattice. In zirconium nitrides with a high content of nonmetallic impurities, the discrepancy between γ_r and γ_p may be due to the defect of the metallic sublattice, which disappears with increased material purity. Orig. art. has: 1 table and 13 references.

2/2

UNCLASSIFIED PROCESSING DATE--23OCT7(

1/2 021

TITLE--SOLUBILITY OF ZIRCONIUM, NIOBIUM, AND MOLYBDENUM IN ALPHA URANIUM -U-

AUTHOR--(03)-GOMOZOV, L.I., LYUTINA, E.M., IVANOV, O.S.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IZVESTIYA AKADEMII NAUK USSR, METALLY, NO 2, MAR-APR 70, PP 210-215

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--SOLUBILITY, ZIRCONIUN CONTAINING ALLOY, NIOBIUM CONTAINING ALLOY, MOLYBDENUM CONTAINING ALLOY, URANIUM ALLOY, ENTHALPY, GRAIN SIZE METAL RECRYSTALLIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0370/70/000/002/0210/0215

PROXY REEL/FRAME--1997/1601

CIRC ACCESSION NO--AP0120366

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT7

CIRC ACCESSION NO--AP0120366

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SERIES OF URANIUM ALLOYS, CONTAINING FROM 0.05 TO 2 AT . PERCENT OF ZIRCONIUM, NIOBIUM OR MOLYBDENUM, WERE MELTED TO DETERMINE TO SOLUBILITY OF THESE ALLOYING ELEMENTS IN URANIUM ALPHA-PHASE AT 550-660DEGREESC. THE INGOTS OBTAINED WERE SUBJECTED TO HOMOGENIZING ANNEALING FOR 50 HR AT 950DEGREESC, QUENCHED IN WATER, AND COLD ROLLED WITH REDUCTIONS OF 50PERCENT. THE PREPARED SPECIMENS WERE ANNEALED AT 550-660DEGREESC FO 240-180 HR, AND SUBSEQUENTLY COOLED IN WATER. IT WAS FOUND THAT THE SOLUBILITY OF THESE ELEMENTS IN THE URANIUM ALPHA-BASE DECREASES WITH INCREASING ANNEALING TEMPERATURE, AND IN ANY CASE DOES NOT EXCEED 0.5 A . PERCENT. THE RELATIVE PARTIAL ENTHALPIES OF SOLUTIONS OF ZIRCONIUM, NIOBIUM AND MOLYBDENUM ARE 15, 20.8, AND 36.8 KCAL-GAT, RESPECTIVELY. INTRODUCTION OF UP TO 0.2 AT . PERCENT OF THE ABOVE MENTIONED ELEMENTS INTO URANIUM LEADS TO A RAPID DROP OF RECOVERY RATE DURING ANNEALING AFTER COLD DEFORMATION, AND TO REDUCTION OF GRAIN SIZE TO 15-25 MICRONS DURING RECRYSTALLIZATION.

UNCLASSIFIED

USSR UDC: 621.373:530.145.6

LYUTOV, V. I., SAMOKHINA, N. V.

"Investigating the Generation Process in CO_2 Lasers With Pulse Excitation"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazoraszryadn. pribory (Electronic Engineering, Scientific-technical Collection, Gas Discharge Devices) 1970, No. 3(19), pp 25-27 (from RZh-Radiotekhnika, No. 3, March 71, Abstract No. 3D249)

Translation: Results are given of an experimental investigation of the dynamics of generation development in CO_2 lasers with a powerful excitation pulse. Estimates are made through which the experimentally observed shape of the radiation pulse is qualitatively explained. Author's abstract

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USSR

UDC 669.715'5'721:620.193.4

KAREVA, A. P., KLEPTSOVA, I. S., LYUTOVA, I. S., RYAZHSKAYA, T. K.

"Study of the Relation between the State of the Alloy of the Al-Zn-Mg System, Its Electrochemical Potential, and the Corrosion Resistance of the Intermediate Products"

V sb, Metallovedeniye (Physical Metallurgy -- collection of works) Sudostroyeniye Press, 1971, pp 133-136 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I679)

Translation: A study was made of the results of comparative studies of the electrochemical potentials of the alloy of the Al-Zn-Mg system in different states. The dependence of the potential on the heating temperature for quenching, annealing, and welding was established. The results of studying the variation of the electrochemical potential during the process of aging the alloys are confirmed by corrosion testing at the laboratory and under natural conditions. Recommendations are made with respect to selecting the heat treatment conditions of the alloy for which corrosion decreases in the weld-affected zone. Two illustrations.

1/1

LYUTOVICH, A.S.

JPRS 59203

6 73

5

X-3b. STUDY OF THE DISTRIBUTION OF ALLOYING ADMIXTURES IN EPITAXIAL LAYERS OF SILICON WITH THE APPLICATION OF RADIOACTIVE ANALYSIS

[Article by A. S. Lyutovich, V. P Pashkudenko, V. V. Kharchenko, E. Kh. Khodzhakhmedov, Sh. Sh. Shamaidov, Tashkent, Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 129]

The idea of this experiment consisted in using alloying admixtures of various chemical nature and varying the crystallization conditions to estimate the contribution of the growth (segregation) effects and the diffusion processes to the final distribution of the admixtures. The epitaxial layers of silicon were obtained by the method of hydrogen reduction of $SiCl_4$ in a broad concentration range of $SiCl_4$ and alloying components. The alloying admixtures were introduced into the system in the form of chlorides from a separate source. In order to determine the distribution profiles of the admixture concentration, the procedure of layered neutron-activated analysis was used. It was demonstrated that the admixture profile in the investigated specimens is characterized by the presence of two sections: 1 -- the section with uniform concentration distribution (the plateau), 2 -- the section where the admixture concentration is nonuniform. Depending on the growth conditions, the ratio of the extent of these sections varies. By using the concentrations of the admixtures in the plateau region, we defined the effect of the crystallization temperature, the concentration of the $SiCl_4$, the PCl_3 and $SbCl_3$ in the gas phase on the alloying level of the epitaxial layer. In the case of low concentration of silicon tetrachloride in the gas phase in some samples the plateau is in practice absent. In a number of specimens, a sharp increase in admixture concentration is noted in the thin surface layer. This is observed especially frequently in specimens alloyed with antimony. The admixture profile in region 2 is described satisfactorily by the diffusion equations with effective coefficients the values of which under various crystallization conditions are essentially different. However, the purely diffusion mechanism of the formation of the profiles will be doubtful in connection with the fact that the metallurgical thickness of the epitaxial layers defined experimentally by the packing defects does not coincide with the thickness corresponding to a concentration of $N_0/2$ which was assumed in the calculations. The contribution of the diffusion and segregation phenomena to the distribution profile of the admixture in region 2 is discussed.

JPRS 59265

6.73

LYUTOVICH, A.S.

X-3a. EFFECT OF THE CRYSTALLIZATION CONDITIONS ON THE TRANSFER OF PHOSPHORUS AND ANTIMONY IMPURITIES FROM THE SUBSTRATES INTO THE EPITAXIAL LAYERS OF SILICON

[Article by A. S. Lyutovich, Z. Kh. Khodzhakhmedov, Y. F. Yashkudenko, V. V. Kharchenko, M. R. Grevnukh, Sh. Sh. Shansidov, Tashkent; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 132]

With the application of a layered radioactive analysis, studies were made of the distribution profiles of antimony and phosphorus in epitaxial layers of silicon as a function of the growth conditions. The epitaxial layers were obtained by the method of hydrogen reduction of silicon tetrachloride. The growth process temperature and the concentration of silicon tetrachloride were varied. The distribution profiles of the antimony and phosphorus can be satisfactorily described by diffusion equations with effective diffusion coefficients differing for different growth conditions. The relations between the diffusion coefficient in single crystals and found in our experiments depend essentially on the temperature, the growth rate and growth time.

With an increase in the growth rate the diffusion coefficients of both impurities increase for all crystallization temperatures (for the deposition temperature of 1,260°C, the variation takes place in the range of $5 \cdot 10^{-12}$ to $4 \cdot 10^{-10}$ cm^2/sec for phosphorus and $3 \cdot 10^{-12}$ to 10^{-10} cm^2/sec for antimony).

The values found for the diffusion coefficients as a function of the growth conditions of the layers can exceed the values known for single crystals. They can be equal and have smaller values.

UDC 669-172

USSR

PANTELEYEVA, G. V., LYUTOVICH, A. S., CHUPRIKOV, G. Ye., and FROLOV, A. V.

"Structure and Electrophysical Properties of Boron in Crystals Produced by Crucibleless Zone Melting in a Vacuum and in an Atmosphere of Hydrogen"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 95-99

Translation: Results are presented from a study of the little-studied material, baron, which is being used increasingly for the manufacture of heat-resistant, refractory alloys, as well as for semiconductor devices for operation under high temperature conditions. Metallographic investigations by the method of chemical thermal etching were performed on high-purity specimens grown by crucibleless zone melting in various atmospheres. The superiority of the structure of boron grown in a vacuum in comparison to that produced in hydrogen is demonstrated. Certain electrophysical properties of boron crystals are studied. 2 Tables; 4 Figures; 4 Bibliographic References.

1/1

USSR UDC:537.226+537.311.35]:539.16.04

ARIFOV, U. A., MIKHAELYAN, V. M., SINYUKOV, V. A., KOROSTELEV, Yu. A., LYUTOVICH, A. S.

"Alloying of Silicon by Bombardment With Thermal Neutrons"

Kristalliz. Tonkikh Plenok [Crystallization of Thin Films -- Collection of Works], Tashkent, Fan Press, 1970, pp. 136-139 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Ye 1100 by T. B. Karashev)

Abstract: Specimens of p-type Si with specific impedence approximately 1200 ohm·cm were bombarded by a stream of reactor neutrons $1.8 \cdot 10^{13}$ $cm^{-2} \cdot sec^{-1}$ for one hour. After annealing at 800°C for four hours, the bombarded specimens had n-type conductivity and $\rho \approx 600$ ohm·cm. Analysis of the variation, with temperature of concentrations and mobilities of carriers showed that the conductivity resulted from the donor impurity, giving a fine level. The alloying effect is related to the phosphorus formed as

USSR

UDC:537.226+537.311.33]:539.16.04

ARIFOV, U. A., MIKHAELYAN, V. M., SINYUKOV, V. A., KOROSTELEV, Yu. A., LYUTOVICH. A. S., Kristalliz. Tonkikh Plenok [Crystallization of Thin Films -- Collection of Works], Tashkent, Fan Press, 1970, pp. 136-139 (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Ye 1100 by T. B. Karashev)

a result of nuclear transformation. The possibility of producing high-resistance n-type Si crystals with even volumetric properties by this method is noted; this is difficult to achieve by other methods.

2/2

LYUTOVICH, A.S.

SO: JPRS 59279
14 June 73

GROWTH OF EPITAXIAL SILICON FILMS WITH THE APPLICATION OF HYDROGEN OF HIGH PURITY AND THE STUDY OF THEIR PROPERTIES

[Article by V. P. Lashkudenko, A. S. Lyutovich, V. M. Mikhaelyan, I. N. Pozdnyakov, Ye. I. Morkovkin; Novosibirsk, Protsessy Rosta i Struktura Monokristallicheskikh Sloyev Poluprovodnikov -- Trudy Simpoziuma, Russian, Part 2, 1969, pp 57-61]

The most prospective and controllable method of growing epitaxial films of silicon is the reduction of its tetrachloride in the region of the heated surface of the monocrystalline substrate of silicon in a hydrogen current. Although this process is the subject of many papers [1-3], the effect of oxygen on the electrophysical properties and the growth kinetics of epitaxial silicon films have been studied inadequately [5].

We have performed comparative experiments to obtain the epitaxial films of high purity (total admixture content $1 \cdot 10^{-7}$ percent by volume) containing a controllable micromount of water vapor in the hydrogen. In Figure 22 we have the schematic of the experimental ten-position device together with the system for batched introduction of water vapor into the hydrogen.

The epitaxial films were obtained on substrates of various types which were placed on the silicon base heated by high frequency currents. The process was realized in a vertical quartz reactor, and the quantity of hydrogen and chloride was regulated within the desired limits. The optimal growth temperature was 1200-1250°C. The silicon chloride had a total impurity content of no more than 10^{-6} percent.

In order to investigate the effect of the oxygen on the growth process, a special saturation system was used (Figure 23).

The hydrogen saturated with water vapor came into the reaction area after the temperature of the substrate reached 1250°C. The substrates were subjected to the effect of the wet hydrogen in practice together with the beginning of deposition. This permitted the pickling effect of the water vapor on the substrate to be avoided [5] and unique data to be obtained on the effect of the water vapor and the oxygen (at a growth temperature of 1250°C, dissociation of the water with the formation of free O_2 takes place). The deposition was carried out with a flow rate of approximately 4 liter/min with a molefraction of $SiCl_4$ in the H_2 equal to 0.005.

LYUTOVICH, A.S.

SO: JPRS 59279
14 June 73

OBTAINING EPITAXIAL SILICON FILMS WITH THE APPLICATION OF HYDROGEN OF HIGH PURITY AND STUDYING THE ADMIXTURE DISTRIBUTION PROFILE

[Article by Yu. A. Raynov, A. L. Shimalinkina, A. S. Lyutovich, V. P. Sukhin, V. V. Kharchenko, E. Khodzhakhmedov; Novosibirsk, Protsessy Rosta i Struktura Monokristallicheskikh Sloyev Poluprovodnikov — Trudy Simpoziuma, Russian, Part 2, 1969, pp 85-92]

The distribution profile of the admixtures in the epitaxial layers plays the decisive role in insuring the given operating characteristics of the semi-conducting devices.

The requirement on obtaining precision profiles is intensified sharply in connection with microminiaturization and the technology of solid state circuitry.

On the other hand, the nature of the admixture distribution in the epitaxial layers provides rich information permitting the discovery of the mechanism of the interaction of the admixtures with the growing crystal.

In practice, the admixture distribution depends on the effect of many chemical-physical factors among which the principal ones are the reaction kinetics in the gas phase, the capture and displacement of admixtures during the growth process, the phase equilibria and the diffusion over the surface and in the solid state.

There are several papers devoted to the admixture distribution during epitaxial growth [1-3, 5, 6]; however, in them the most important question is not investigated — the distribution of the film in the body connected with purposeful alloying from the gas phase in the growth process.

Grove [1] investigated the admixture distribution in the film-substrate system for the case where the alloying admixture was evaporated from the solid phase and then was again crystallized from the vapor-gas mixture.

In the indicated paper a study was made of a distribution profile of the admixtures on the basis of the diffusion theory in the solid state, and special experiments were performed with antimony and boron. The author

LYUTOVICH, K.L.

JPRS 57265
6.73

XIV-19. MORPHOLOGY OF THE EPITAXIAL LAYERS OF SOLID SILICON-GERMANIUM SOLUTIONS

[Article by K. L. Lyutovich, Institute Poluprovodnikovykh Kristallov i Plenok, Academy of Sciences USSR, Kiev]

In this paper a study was made of the structure and the morphology of the surfaces of epitaxial layers of solid germanium-silicon solutions with respect to the composition from the gas phase in the hydrogen chloride process on a silicon substrate. The data presented on the effect of the component ratio of the solid solution which varies within a broad range demonstrate the conditions and the gas phase composition.

Depending on the growth conditions (the composition and the crystallization temperature), the process is realized by the gas-solid and the crystallization in the region of the diagram of state below the solidus and with respect to the gas-liquid-solid state mechanism on achievement of it.

Data are presented on the surface morphology of the layers illustrating the processes. The structure of such layers is compared.

The epitaxial layers of the solid solutions are crystallized with a compositional which is homogeneous with respect to depth (except the transient region) and also by a gradual increase in concentration from the film-substrate interface to the surface. It is demonstrated that this offers the possibility of increasing the production of these layers by smoothly varying the lattice parameter.

LYUTOVICH, K. L.

JPRS 59268

6-73

XIV-18. EFFECT OF THE CRYSTALLOGRAPHIC ORIENTATION ON THE CRYSTALLIZATION OF EPITAXIAL LAYERS OF SOLID SILICON-GERMANIUM SOLUTION

[Article by K. L. Lyutovich, V. Ya. Maskin, Tashkent; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 17-17 June 1972, p 215]

In this paper the results are presented from a study of the effects of the crystallographic orientation plane of the substrate in the various conditions of crystallization of the epitaxial layers of solid solutions of silicon-germanium and different component ratios on the growth rate and also on the nature of the morphology and perfection of the growing layers.

By using the local x-ray spectral analysis, the variation of the intrusion of germanium into the layer from the gas phase was investigated depending on the crystallographic orientation, the crystallization temperature and the component ratios.

The role of the crystallographic plane in the formation of the germanium distribution profile in the solid solution layer which is determined using the scanning electron sonde is evaluated.

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--CONFIGURATION AND REACTIVITY OF SATURATED CYCLIC AND HETEROCYCLIC COMPOUNDS -U-

AUTHOR-(05)-LYUTS, A.YE., AGASHKIN, O.V., ARTYUKHIN, V.I., SOKOLOV, D.V., LITVINENKO, G.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK KAZ. SSR, SER. KHIM. 1970, 20(1), 74-81

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--MASS SPECTRUM, BENZENE DERIVATIVE, QUINOLINE, AMINE, AMIDE, CONJUGATE BOND SYSTEM, ISOMER, IONIZATION POTENTIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1660 STEP NO--UR/0360/70/020/001/0074/0081

CIRC ACCESSION NO--AP0100264

UNCLASSIFIED

2/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0100264

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MASS SPECTRA OF 4 ISOMERS OF 1 BENZOYL, 2 METHYLDECAHYDROQUINOLINE AT IONIZATION VOLTAGES OF 20 AND 70 V WERE OBTAINED. THE DISTRIBUTION OF POS. CHARGE BETWEEN N AND FRAGMENTS CONTG. BENZOYL IS AFFECTED BY THE STRUCTURE AND CONFIGURATION OF THE MOL. IN THE CASE OF ISOLATED BENZOYL AND AMINO GROUPS, POS. IONS CONTG. N PREVAILED. IN THE CASE OF AMIDES, THE POS. CHARGE WAS LOCALIZED IN FRAGMENTS CONTG. C SUB6 H SUB6 AND THE DEGREE OF LOCALIZATION INCREASED WITH INCREASED EFFICIENCY OF CONJUGATION.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--RESULTS OF TESTING AN EXCHANGE CAPACITY GAGE FOR FIRST STAGE ANION EXCHANGE FILTERS -U-
AUTHOR-(02)-KUZNETSOVA, S.A., LYUTSKO, V.V.

COUNTRY OF INFO--USSR

SOURCE--TEPLOENERGETIKA 1970, 17(5), 57-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ANION EXCHANGE RESIN, FILTRATION, CHLORIDE, SODIUM
COMPOUND/(U)AN2F ANION EXCHANGE RESIN, (U)AN31 ANION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1250 STEP NO--UR/0096/70/017/005/0057/0059

CIRC ACCESSION NO--AP0134924

UNCLASSIFIED

2/2 008 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134924

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN INSTRUMENTAL METHOD OF DETG. THE EXCHANGE CAPACITY OF ANION EXCHANGE FILTERS (TYPES AN2F, AN31) AND THEIR REGENERATION WITH NA PRIME POSITIVE IS DESCRIBED. FILTER EXCHANGE CAPACITY MEASUREMENT IS BASED ON THE DETN. OF CL PRIME NEGATIVE ION (0.2-4.5 MG PER L.) CONCN. IN THE FILTRATE BY MONITORING ITS ELEC. COND. THE REGENERATION OF AN AN31 FILTER SHOWING A FILTRATE CL PRIME NEGATIVE CONCN. OF 3.5 MG PER L. AND A NA PRIME POSITIVE CONCN. OF 6 MG PER L. IS DISCUSSED. FACILITY: VSES. TEPLOTEKH. INST., USSR.

UNCLASSIFIED

USSR

UDC 669.25:669.017.3

BOKSHTEYN, S. Z., LYUTTSAU, V. G., RAZUMOVSKIY, I. M., SVETLOV, I. L., and FISHMAN, Yu. M., All-Union Scientific Research Institute of Aviation Materials

"Martensitic Transformation in Cobalt Whiskers"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 6, Jun 72, pp 1277-1284

Abstract: An x-ray investigation was made of the phase composition and dislocation structure of cobalt whiskers grown by $CoBr_2$ reduction at 720-760°C. The structures of whiskers in which an incomplete martensitic transformation occurred and the structures of whiskers with mixed phase composition are imperfect. Dislocations with the Buerger vector b=1/3<111> lying in planes parallel to the habitus plane in transformation were found in crystals of these whiskers. In whiskers with a mixed phase composition, the dislocations are concentrated in regions retaining the high-temperature modification with a centered cubic structure. Obviously, martensitic transformations can occur in ideal crystals, but structural defects prevent the transformation development according to the martensitic mechanism. Three figures, fourteen bibliographic references.

1/1

USSR

UDC 539.4

GUDCHENKO, V. M., LYUTTSAU, V. G.

"Structural Changes in the Surface Layers of ShKh-15 Steel Under a Pulsating Contact Load"

V sb. Vysokoskorostn. deformatsiya (High-Speed Deformation -- Collection of Works), Moscow, "Nauka", 1971, pp 92-95 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V1459)

Translation: The change in the microhardness and structure of surface layers of ShKh-15 steel under a pulsating contact load is discussed. The microstructure and rentgenographic studies showed that processes leading to phase changes, an increase in carbon content, a change in the substructure dimensions, and the development of microstresses reaching 30 kg/mm^2 is achieved in the zone of the contact spot. The basic change in properties and structure occur under the combined action of tangential and normal forces. Authors abstract.

1/1

USSR

UDC 539.4

LYUTTSAU, V. G., BELOUSOV, N. N., and ROVINSKIY, B. M., Moscow

"On the Generation of Micropores in Alloys"

Moscow, Fizika i Khimiya Obrabotki Metallov, No 1, Jan-Feb 71, pp 81-84

Abstract: The microporosity in aluminum alloys was investigated by the X-ray shadow microscopy method. The character and sizes of micropores generating in alloys during the crystallization process and heat treatment were determined. It is demonstrated that an increase of the cooling rate of alloys during the crystallization leads to a decrease in the dimensions of micropores and an increase of their concentrations. The fact was ascertained of the micropore generation in locations corresponding to dispositions of the second phase in alloys by heating and subsequent hardening. Considerations are presented on the mechanism of micropore generation by heat treatment of alloys containing dispersed inclusions of the second phase.

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USSR

UDC 539.374

BERNSHTEYN, M. L., LYUTTSAU, V. G., PLATOVA, S. N., LYUTTSAU, A. V., and RUDNITSKIY, YE. N., Moscow Institute of Steel and Alloys

"Mechanism of Hardening of Steel as a Result of High-Temperature Thermomechanical Treatment"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 36, No 2, 1973, pp 394-399

Abstract: The austenite substructure formed upon hot deformation under conditions of high-temperature thermomechanical treatment, defining the change in the composition of the martensite, is quite stable and is retained for a long period of time after completion of deformation and after secondary heat treatment. Achievement of the optimal conbination of mechanical properties as a result of high-temperature Thermomechanical treatment requires that the substructure-formation process develop in such a way that most of the initial high-angle boundaries disappear, so that the entire volume of the metal is filled with subgrains which grow with time. There is a stage of the process (a duration of holding after deformation) such that as the new recrystallized structure is formed by coalescence of subgrains, the old high-angle boundaries disappear completely, while no new high-angle boundaries are yet formed.

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USSR

UDC 539.4

LOZINSKIY, M. G., LYUTTSAU, V. G., TANANOV, A. I.

"Details of the Structure of 'White Phases' Formed in the Process of High-Speed Collision of Metals"

V sb. Vysokoskorostn. deformatsiya (High-Speed Deformation — Collection of Works), Moscow, "Nauka", 1971, pp 88-92 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V1466)

Translation: The microstructural characteristics of the structure of a two-layer steel (St 3 + Kh18N10T) plated with the aid of pulse loading are considered. The results of metallographic, x-ray microscopic, and micro-x-ray spectral analysis of the "white phases" formed during high-speed collision of metals are presented. It is shown that the combination of metallographic analysis with x-ray methods makes it possible to obtain new data on the structural characteristics of metals coated with the aid of pulse loading. Authors abstract.

1/1

Acc. Nr: AT0048312 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: 4R 0020

93956r Auto-epitaxial synthesis of diamond crystals. Deryagin, B. V.; Lyuttsau, V. G.; Fedoseev, D. V.; Ryabov, V. A. (Inst. Fiz. Khim., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190 (1), 86-7 [Tech Phys] (Russ). By using the method described by Deryagin, *et al.* (1968), a ~80μ diam. and 120μ long diamond crystal was grown on the (111) lattice of a support crystal.

HMJR

REEL/FRAME
19800014

USSR

UDC: 531.01

GANIYEV, R. F., LYUTYY, A. I.

"Stability of a Gyroscope on a Vibrating Base Under Resonant Conditions"

Kiev, Prikladnaya Mekhanika, Vol 8, No 11, Nov 72, pp 43-50.

Abstract: The problem of the stability of the equilibrium position of astatic and heavy gyroscopes on vibrating bases is studied under resonant conditions. It is demonstrated that the equilibrium position of gyroscope conditions may be unstable with subharmonic or combination resonances. Viscous friction in the bearings of the gimbal support is an aid to system stability, while the kinetic moment of the rotor and shifting of its center of gravity cause unstable motion of the gyroscope. The configuration of the ellipsoids of inertia of the gimbal frames and the gyroscope rotor has a significant influence on system stability.

1/1

USSR

UDC 531.01

GANIYEV, R. F. and LYUTYY, Institute of Mechanics, Academy of Sciences, Ukrainian SSR (Kiev)

"The Stability of a Biaxial Gyro Gimbal Frame on a Vibrating Base Under Resonance Conditions"

Kiev, Prikladnaya Mekhanika, Vol 9, No 9, 1973, pp 36-45

Abstract: Consideration is given to the problem of the stability of a free biaxial gyro gimbal frame on a vibrating base under resonance conditions. The frame consists of two free gyroscopes, connected into a single system. The law of motion of the gyroframe base is assumed to be given, and the gyroframe is assumed to be free and equilibrated. It is shown that the equilibrium position of this gyroscopic system can be unstable at subharmonic and combination resonances. The drift of a biaxial gyroframe during the action of a two-component single-frequency vibration upon its base is computed. 6 figures. 7 references.

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EQUIPMENT
Gyroscopic

USSR

UDC 531.36

GANIYEV, R. F., LYUTYY, A. I., VOROB'YEV, V. M.

"On the Stability of Gyroscopic Systems Under Resonance Conditions"

V sb. Konf. po kolebaniyam mekh. sistem. Tezisy dokl. (Conference on Oscillations of Mechanical Systems. Abstracts of the Reports), Kiev, "Nauk. dumka", 1971, p 23 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10A225)

Translation: An investigation is made of the effect which angular and translational vibrations of the base have on the stability of motion of gyroscopic systems under resonance conditions. Investigations are made of the stability of the equilibrium position of a double-axle gyroframe, an astatic gyroscope, a heavy gyroscope with horizontal suspension shaft of the outer ring, and also the stability of pseudoregular precession of a heavy gyroscope in which the axis of the outer ring suspension is vertical.

The velocities of systematic drifts are calculated, and conditions of stability at resonance are found. It is shown in particular that the most dangerous perturbations of the base which increase the amplitude of

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USSR

GANIYEV, R. F., et al., Konf. po kolebaniyam mekh. sistem. Tezisy dokl., Kiev, "Nauk. dumka", 1971, p 23

nutational vibrations are the angular vibration of the base relative to the axis coinciding at time zero with the axis of proper rotation of the rotor, and also translation vibration along the axis of rotation of the rotor.

2/2

172 033 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--METHOD OF DETERMINING THE PLASTIC DEFORMATION OF MICRO SAMPLES SUBJECTED TO TENSILE STRAIN -U-

AUTHOR-(03)-MAKSIMOVICH, G.G., PAVLINA, V.S., LYUTY, E.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. KHIM. MEKHAN. MAT., 1970, 6, (1), 69-72

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--RHEOLOGIC PROPERTY, PLASTIC DEFORMATION, TEST METHOD, STAINLESS STEEL, ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0210 STEP NO--UR/0369/70/006/001/0069/0072

CIRC ACCESSION NO--AP0129466

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129466

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF AN APPROX. SOLUTION OF THE GENERAL ELASTIC PLASTIC PROBLEM ENCOUNTERED WHEN ANALYSING THE RHEOLOGICAL PROPERTIES OF MATTER, A FORMULA RELATING THE SMALL RESIDUAL DEFORMATION (STRAIN) IN THE WORKING PART OF A METAL SAMPLE SUBJECTED TO TENSILE STRAIN TESTS TO THE EXPERIMENTALLY MEASURED ELONGATION IS DERIVED. EXPERIMENTAL TESTS WITH ARMCO FE, STAINLESS STEEL, AND AL ALLOY SAMPLES CONFIRM THE VALIDITY OF THIS FORMULA. A NOMOGRAM FACILITATING RAPID PRACTICAL USE OF THE FORMULA IS PRESENTED.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002201910002-4"

USSR

AGEYEV, V. A., GAVRILYUK, V. I., KUPRYASHKIN, V. T., LATYSHEV, G. D., LYUTYY, I. N., MAYDANYUK, V. K., MAKOVETSKIY, Yu. V., and FEOKTISTOV, A. I., Institute of Physics of the Academy of Sciences UkrSSR

"Study of Conversion Electron Spectrum of Nb^{96}"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 8, Aug 70, pp 1614-1617

Abstract: Individual segments of the conversion electron spectrum of Nb^{96} associated with the doublet structure of transitions found by Monaro and others are also possible according to the decay scheme of Nb^{96} are studied. The measurements were made on the magnetic β-spectrometer of the type $\pi\sqrt{2}$ of the Institute of Physics of the Academy of Sciences UkrSSR. The measurements showed K-line doublets of transitions in the regions 350, 720, and 810 kev and K241.3 is apparently a single line. The results of the measurements are given in a table. The energy of all transitions observed was determined with an error of ±0.3 kev. The K-lines of the transitions 350.1 and 352.1 kev were weak and therefore only an estimate of their intensity is given. For all transitions observed, α_K were determined with respect

USSR

AGEYEV, V. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No 8, Aug 70, pp 1614-1617

to the ratios of the intensities of the conversion lines to the intensities of γ-rays. The values of α_K for the transitions 350.1 and 352.1 were estimated. All transitions correspond to multipolarities M1 or E2. The exception was γ812.4, for which the internal conversion ratio was less than that established from Tc^{96} decay. The ground states are evaluated on the basis of the shell model.

USSR

UDC: 534.2

LYUTYY, V. A., NOVIKOV, L. V., SHVETS, A. I., Moscow

"Pulsations of Pressure in Ring Nozzles"

Moscow, Mekhanika Zhidkosti i Gaza, No 5, Sep-Oct 73, pp 126-132

Abstract: Results are presented from studies of the pulsations of bottom pressure on the end of a ring nozzle, related to the acoustical radiation of the supersonic streams. Pressure pulsations were studied using nozzles flat in the radial cross section with diameter of outer portion of section 110 mm, of inner portion -- 88 mm. An inductive pressure sensor was placed at the center of the end portion. Membrane-type inductive differential convertors were used in an arrangement with counter pressure. The signal was recorded on a 5-channel magnetic recording apparatus with preliminary amplification by a station with a carrier frequency of 36 KHz. The convertors and amplifier-recorder section were calibrated using a resonant-type pulsator, as well as a microphone, amplifier and magnetic recorder manufactured by Bruel and Kjer. The results of calibration indicate that the mean-square error in measurement of pulsation amplitude should not be over ±3 db, of frequency ±5%. The studies of the low-frequency approximation of the dispersion equation for a two-layer cylindrical stream showed

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USSR

LYUTYY, V. A., NOVIKOV, L. V., SHVETS, A. I., Moscow, Mekhanika Zhidkosti i Gaza, No 5, Sep-Oct 73, pp 126-132

that the ring stream tends to oscillate as a unit whole. It is known that the oscillations of flat streams are axisymmetrical, of circular streams -- primarily bending, but there are flow loads when the oscillations are symmetrical. In the open-bottom area mode, feedback apparently arises due to radiation of waves by several periodic cells in the stream. In the critical mode there is only one cell. In this case, the resonant process does not occur.

2/2

AN0043426 Lyutyy V.P. UR 0482

1-10

Soviet Inventions Illustrated, Section I Chemical, Derwent,

232080 POLYMER-CEMENT SUSPENSION suitable for the formation of protective coatings on metals, ceramic article or glass, or for gluing, consists of (in parts by wt): portland cement 10-50, polymethylphenylsiloxane resin 10-80, organic solvent for the resin 5-75, water 5-25 and optionally, a filler (mica, asbestos, oxides of chromium or zinc, etc). Suitable organic solvents include lower alcohols (methanol, ethanol etc), acetone, dioxane, or the like. A thorough mixing of the components results in the formation of a suspension of hydrated cement in a soln. of the resin in the organic solvent. To form a continuous coating, the suspension is applied onto the article to be protected, and subjected to thermal treatment at 80-250°C for 3-24 hrs. The water-absorption of the coating after 24 hrs. is

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AA0043426

11.5%; the absorption of benzene 4-7%; maximum weight loss at 200°C not more than 20%; dielectric constant 2-4; dielectric loss 0.03-0.00[illegible]; electric resistance $3\text{-}10^{12}$ ohm. cm; breakthrough voltage 13 kv/mm. 1.4.67. as 1144785/29-33, LYUTYI, V.P. et al. I.V. Grebenshchikov Silicate Chemistry Inst. (19.8.69) Bul. 36/28.11.68. Class 80b, Int. Cl. C 04b.

19761742

AA0043426

AUTHORS: Lyutyy, V. P.; Rumyantsev, P. F.; Kharitonov, N. P.; Lyutaya, O. N.; Vasil'yeva, I. B.

Institut Khimii Silikatov imeni I. V. Grebenshchikova

19761743

USSR UDC 539.376:014.12

MAKSIMOVICH, G. G., and LYUTYY, YE. M., Physicomehcancial Institute, Academy of Sciences Ukrainian SSR, L'vov

"Effect of Test Temperature on the Nature of Strain Hardening of Type Kh18N9T Steels"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 10, No 1, 1974, pp 101-103

Abstract: The relationship of critical temperature to magnitude of prestressing was established for microsamples of steel Kh18N9T at 20° C in air and at 500, 640, 800 and 950° C in a medium of purified argon. Prior to testing, the samples were vacuum annealed at 1100° C for 1.5 hours. It was found that test temperature has a significant effect on tensile, yield, and long-time strengths of the steel with respect to prestressing magnitude. As the coefficient of prestressing increases, the critical temperature for respective strength decreases, and the longer samples remain at test temperatures the lower their critical temperature, although the lowering of critical temperature doesn't start until the coefficient of prestress reaches 0.6. Three figures, four bibliographic references.

1/1

USSR UDC 620.178.1:669.15

MAKSIMOVICH, G. G., NAGIRNYY, S. V., LYUTYY, YE. M., and IGNATIV, M. I.,
Institute of Physico Mechanics, Academy of Sciences Ukrainian SSR

"Change in the Fine Structure of 1Kh18N9T Steel After Extended Stressing in Molten Lithium"

L'vov, Fiziko-Khimicheskaya Mekhanika Materialov, No 3, May-June '70, pp 67-70

Abstract: A study was made of dislocation structural changes occurring in 1Kh18N9T steel when it is immersed in molten lithium under stress. Both the surface (less than 50 microns) and center of the steel samples were studied after holding the samples in lithium at temperatures of 500 and 650°C under stress.

A low dislocation density ($10^7/cm^2$) was noted in the initial samples, and the dislocation distribution was not uniform. Small masses of dislocations were noted near the grain boundaries and near the twin boundaries, as well as near a different site of inclusions and stacking faults. A large portion of the sample cross section was free of dislocations. After holding samples at 500°C for 100 hours, dislocation density was reduced further ($10^6/cm^2$), and was concentrated primarily between the carbides. Slip traces of dislocation groups and some growth of carbides in the dislocations were detected. Holding samples in lithium for 100 hours at 500°C under a stress of 17 kg/mm^2 caused a significant increase in dislocation

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USSR

MAKSIMOVICH, G. G., Fiziko-Khimicheskaya Mekhanika Materialov, No 3, May-June 70, pp 67-70

density. In the sample center, dislocation density was much higher than in the surface layer and they formed complex and tightly joined masses, especially around precipitated constituents. In the surface layer, dislocations were grouped around coarse carbides, where individual dislocation loops and lattices were observed close to large carbides and grain boundaries.

For samples held in lithium for 100 hours at 650°C under a load of 11.9 kg/mm^2 the fine structure was similar to that described above--as to dislocation distribution. In this case the dislocation density gradient in the surface layers and in the center of the samples was much larger than at 500°C. In the sample centers growth of both small and large carbide chains was noted while around the precipitated particles there was a dense, barely discernible dislocation lattice. In the surface layers there were fewer carbides, lower dislocation density, and a more uniformly distributed dislocation density. Individual dislocations interacted to form dislocation loops, and there were large areas free of dislocations. Near the grain boundaries a true dislocation lattice is formed. Moreover, twins were noted which in the center zone of the sample were surrounded by dense dislocation masses. Dislocations were absent in the surface layer.

2/3

USSR

MAKSIMOVICH, G. G., et al, Fiziko-Khimicheskaya Mekhanika Materialov, No 3, May-June 70, pp 67-70

From the above-described observations it was deduced that molten lithium dissolves the oxide film on the sample surface and dissolves impurities and inclusions in 1Kh18N9T steel as a result of which the number of barriers retarding dislocation movement to the surface is diminished.

3/3

USSR

UDC: 621.382.029.6

VIKULINA, L. F., GONYAYEV, G. S., LYUZE, L. L., FEDOROV, Ye, V., SHIROKOVA, L. S.

"Investigation of the 'Second Threshold' Effect in Gallium Arsenide Cavity Oscillators"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 1, Jan 71, pp 131-133

Abstract: An attempt is made to explain the "second threshold" effect reported by Gunn in 1966. The essence of this phenomenon is that an abrupt change in the frequency of oscillations takes place with an accompanying reduction in the average current through some gallium arsenide specimens when the bias voltage exceeds a certain value. The following mechanism is proposed as an explanation of the effect. At bias voltages between the threshold value and the "second" threshold, the specimen is operating in a "resonance-drift" mode. The overall voltage during the negative part of the cycle of the variable component falls below the threshold value, which delays the time for generation of a new domain. Above a certain bias voltage, which differs for different specimens, the amplitude of the variable component may be too small, so that the overall voltage does not fall below the threshold value. Thus there

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USSR

VIKULINA, L. F., et al, Radiotekhnika i Elektronika, Vol 16, No 1, Jan 71, pp 131-133

is a jump to the drift mode of operation. The lower amplitude of the oscillations in this mode is due to the reduction in current pulse duration. Frequency jumps do not take place when the specimens are connected in higher-Q oscillator sections, or when the elements of the section are adjusted with a change in voltage.

2/2

1/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--EFFECT OF A STATIC DOMAIN ON CURRENT VOLTAGE CHARACTERISTICS -U-

AUTHOR-(02)-SHUSHKEVICH, V.L., LYUZE, L.L.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 650-2

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--VOLT AMPERE CHARACTERISTIC, GERMANIUM SEMICONDUCTOR, ELECTRIC FIELD, ELECTROSTATIC FIELD, PERIODIC PULSE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1974 STEP NO--UR/0181/70/012/002/0650/0652

CIRC ACCESSION NO--AP0105048

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0105048

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EZPTL. RESULTS ARE GIVEN ON SOME PROPERTIES OF THE STATIC DOMAINS. N-GE SPECIMENS WERE USED WITH THE CONCN. OF BASIC CARRIERS AT 290DEGREESK OF 2 TIMES 10 PRIME14 CM PRIME NEGATIVE3. MEASUREMENTS WERE CARRIED OUT UNDER PULSED CONDITIONS (1-50 MSEC. 50 HZ). MEASUREMENTS OF THE DISTRIBUTION OF THE FIELD ALONG THE SPECIMEN SHOW THAT THE DOMAIN IS ALWAYS FORMED AT THE CATHODE. THE FIELD IN THIS REGION CAN EXCEED THE FIELD ELSEWHERE IN THE SPECIMEN BY 2 ORDERS OF MAGNITUDE AND REACH A VALUE OF 10 PRIME4 V-CM FOR AN AV. APPLIED FIELD OF 1000 V-CM. THIS PHENOMENON IS NOT OF THE CONTACT TYPE, HOWEVER, AND THE REGION OF FORMATION OF THE DOMAIN CAN BE ADJUSTED BY THE GEOMETRY OF THE SPECIMEN. DIMENSIONS OF THE DOMAIN AND MAGNITUDE OF THE FIELD DEPEND ON THE AV. VALUE OF THE FIELD ON THE SPECIMEN. WITH INCREASING FIELD, THE FIELD IN THE DOMAIN INCREASES AS WELL AS ITS DIMENSIONS AND IT IS HSIFTED TOWARD THE ANODE. THE PRESENCE OF THE DOMAIN CHANGES THE CURRENT VOLTAGE CHARACTERISTICS OF THE SPECIMEN.

UNCLASSIFIED

1/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--RELAXATION OSCILLATIONS ARISING DURING A STUDY OF GRADIENT INSTABILITY IN NEARLY INTRINSIC GERMANIUM -U-

AUTHOR-(03)-ZAVYALOV, A.V., KARLOVA, G.F., LYUZE, L.L.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 915-17

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--GERMANIUM, VOLT AMPERE CHRACTERISTIC, OSCILLTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0990 STEP NO--UR/0181/70/012/003/0915/0917

CIRC ACCESSION NO--AP0115011

UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0115011

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. N TYPE GE WAS INVESTIGATED WITH A SP. RESISTANCE OF 43 OHM CM OF THE STRUCTURE N PRIME POSITIVE MINUS N MINUS N PRIME POSITIVE, WITH A TRANSVERSE N PRIME POSITIVE MINUS N CONTACT AND WITHOUT IT. MEASUREMENTS WERE CARRIED OUT UNDER PULSED CONDITIONS AT TAU EQUALS 50-100 MU SEC AND A FREQUENCY OF REPETITION OF 50 HZ. V A CHARACTERISTICS AND THE POTENTIAL DISTRIBUTION ALONG THE LENGTH OF THE SPECIMENS WERE RECORDED. ON V-I CHARACTERISTICS, A SECTION WAS OBSD. OF SWITCHOVER FROM A HIGH RESISTANCE STATE TO A HIGH COND. STATE. THE POTENTIAL DISTRIBUTION OVER THE LENGTH OF THE SPECIMEN BEFORE SWITCHING AND AFTER IS DIFFERENT. REDISTRIBUTION OF THE POTENTIAL LEADS TO A RECHARGING OF THE CAPACITANCE CONNECTED TO IT. THE DEPENDENCE IS ALSO GIVEN OF THE PERIOD OF CURRENT OSCILLATIONS IN THE EXTERNAL CIRCUIT ON THE MAGNITUDE OF THE CONNNECTED CAPACITANCE. STARTING WITH A VALUE OF C SUBC, THE PERIOD IS PRACTICALLY INDEPENDENT OF THE CAPACITANCE. THE EFFECT OF A MAGNETIC FIELD ON THE PERIOD IS DETD. BY THE EFFECT OF THE HALL EMF. ON THE CAPACITANCE.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--POLYCONDENSATION OF OLIGOMERS OF POLYETHYLENE TEREPHTHALATE IN THE SOLID PHASE -U-

AUTHOR-(02)-ZHUPIYEV, L.I., LYZHNIK, ZH.F.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, (3), 14-15

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYCONDENSATION, POLYETHYLENE TEREPHTHALATE, OLIGOMER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0665 STEP NO--UR/0191/70/000/003/0014/0015

CIRC ACCESSION NO--AP0119573

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119573

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLY(ETHYLENE TEREPHTHALATE) OLIGOMERS OF MOL. WT. LARGER THAN OR EQUAL TO 30,000 WERE OBTAINED WITHOUT MELTING THE STARTING MATERIALS OR THE CONDENSED PRODUCTS. THE ADVANTAGES OF SOLID PHASE POLYCONDENSATION OVER POLYCONDENSATION IN THE MELT ARE DISCUSSED AND SEVERAL PRACTICAL RECOMMENDATIONS MADE.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ANALYSIS OF TUMOR TRANSFORMATION OF TISSUES. II. BIOCHEMICAL DEDIFFERENTIATION OF TISSUE DURING CARCINOGENESIS, CHANGES OF CREATINE

AUTHOR-(05)-SALYAMON, L.S., ASHMARIN, I.P., OSTRETSOVA, I.B., LYZLOVA, S.N., PLUZHNIKOVA, G.F.

COUNTRY OF INFO--USSR

SOURCE--TSITOLOGIYA 1970, 12(1), 102-10

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUMOR, TISSUE PHYSIOLOGY, CELL PHYSIOLOGY, ENZYME ACTIVITY, CARCINOGEN, CARBON TETRACHLORIDE, LEAD COMPOUND, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/2107 STEP NO--UR/9053/70/012/001/0102/0110

CIRC ACCESSION NO--AP0127480

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127480

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CREATINE KINASE (I) AND ALK. PHOSPHATASE (II) ACTIVITY WAS STUDIED IN TRANSPLANTABLE TUMORS (HEPATOMA 22A IN C SUB3 HA MICE, HEPATOMA 27 AND KIDNEY TUMOR AB-12 IN RATS) AND TISSUES OF MICE AND RATS ADMINISTERED CARCINOGENIC COMPDS. (CCL SUB4, PB(OAC)SUB2, URETHANE AND 3,4,BEZNO(ALPHA) PYRENE). I ACTIVITY WAS INCREASED 3 FOLD IN HEPATOMA 27 AND 5-10 FOLD IN HEPATOMA 22A. IT INCREASED ALSO UP TO 2 FOLD DURING THE HEPATOCARCINOGENESIS IN MICE AFTER CCL SUB4 ADMINISTRATION. AFTER THE ADMINISTRATION OF 3,4,BENZO(ALPHA)PYRENE, I ACTIVITY IN SKELETAL MUSCLES DECREASED TO 56PERCENT OF THE NORMAL VALUE WITHIN 26 DAYS AND A SIMILAR DECREASE WAS FOUND IN KIDNEYS OF RATS ADMINISTERED PB ACETATE. HOWEVER, I ACTIVITY IN THE LIVER WAS INCREASED. II ACTIVITY IN THE LIVER OF MICE ADMINISTERED CCL SUB4 INCREASED UP TO 3 FOLD DURING THE 1ST FEW DAYS THEN RETURNED TO NORMAL VALUES. PB ACETATE CAUSED A DECREASE IN II ACTIVITY IN THE KIDNEY AND KIDENY TUMORS. AFTER THE ADMINISTRATION OF URETHANE, II ACTIVITY IN THE LIVER INCREASED. IT WAS CONCLUDED THAT CHEM. CARCINOGENESIS IS ACCOMPANIED BY REPRESSIONS AND DEREPRESSIONS OF GENES REGULATING THE SYTHESIS OF ENZYMES IN CERTAIN TISSUES.

FACILITY: LAB. PATHOL. PHYSIOL. TUMOR GROWTH, INST. ONCOL., LENINGRAD, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--NEW TUBULAR PILE DRIVING DIESEL HAMMERS -U-

AUTHOR-(03)-LYZO, B.G., DMITREVICH, YU.V., TERENTSKIY, L.N.

COUNTRY OF INFO--USSR

SOURCE--NUSCOW, OSNOVANIYA, FUNDAMENTY I MEKHANIKA GRUNTOV, NO 1, 1970, PP 27-28

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CONSTRUCTION MACHINERY, REINFORCED CONCRETE, DIESEL ENGINE, SOIL STRUCTURE, PILE DRIVER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1452 STEP NO--UR/0225/70/000/001/0027/0028

CIRC ACCESSION NO--AP0107896

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